Docket: 03-099

IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Richard Carlton Mattison
Application No.:	10/702,314
Date Filed:	11/06/2003
Title:	ELECTROACTIVE POLYMER ACTUATED SHEATH FOR IMPLANTABLE OR INSERTABLE MEDICAL DEVICE
Group Art Unit.:	3731
Atty. Docket No.:	03-099

INFORMATION DISCLOSURE STATEMENT (IDS)

Mail Stop DD
Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SIR:

In accordance with 37 C.F.R. §1.56 and in compliance with 37 C.F.R. §§1.97 and 1.98, the references listed on attached Form PTO/SB/08 and/or subsequently identified herein, are being submitted herewith for consideration by the United States Patent and Trademark Office.

I. COPIES

a. ☒ A legible copy of (i) each foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed, is included herewith.

b. ☐ Any patents, publications or other information which are listed on PTO/SB/08 which are not enclosed herewith were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. §120:

U.S. Serial Number — U.S. Filing Date

II. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

a. ☒ Except as may be indicated below in (b) of this section, all of the patents, publications or other information are in the English language (concise explanation not required).

b. ☐ A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:

c. ☐ The following additional information is provided for the Examiner's consideration:

III. ☐ CROSS REFERENCE TO RELATED APPLICATION(S)

The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this (these) applications to the Examiner's attention, Applicant(s) does (do) not waive the confidentiality provisions of 35 U.S.C. §122.

Serial No. — Filing Date — Art Unit

FEES

IV. ☒ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(b): (check one box)

a. ☐ within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. §1.97(b)(1)). No fee or statement is required.

b. ☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. §1.97(b)(2)). No fee or statement is required.

c. ☒ before the mailing date of a first Office Action on the merits (37 C.F.R. §1.97(b)(3)). No fee or statement is required.

d. ☐ before the mailing date of a first Office Action after the filing of a request for continued examination under § 1.114 (37 C.F.R. § 1.97(b)(4)). No fee or statement is required.

V. ☐ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(c): (check one box)

before the mailing date of any of a Final Office Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application (See 37 C.F.R. §1.97(c)).

a. ☐ No statement; therefore, charge deposit account 50-1047 the fee set forth in 37 C.F.R. §1.17(p).

b. ☐ See the statement below. No fee is required.

VI. ☐ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(d):

on or before payment of the issue fee and is accompanied by the following:

1) a statement under 37 C.F.R. §1.97(e) as provided below; and

2) charge deposit account 50-1047 the petition fee set forth in §1.17(p).

VII. ☐ STATEMENT UNDER 37 C.F.R. §1.97(e) (check only one box, if applicable)

The undersigned hereby states that

a. ☐ each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of IDS; or

b. ☐ no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application, and to knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement, or

c. ☐ some of the items of information contained in the IDS were cited in a communication from a foreign Patent Office. As to this information, the undersigned states that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby states that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement.

VIII. PAYMENT OF FEES

☐ A check in the amount of _____ is enclosed for the above-identified fee(s).

☐ Please charge Deposit Account No. 50-1047 in the amount of $180.00 for the above-indicated fee(s).

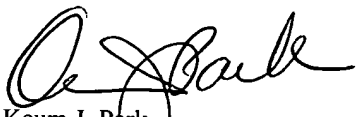
☒ If Applicant has overlooked any additional fees, or if any overpayment has been made, the Commissioner is hereby authorized to credit or debit Deposit Account 50-1047.

☐ Two Copies of this paper are attached for Deposit Account charges and debits.

It is Applicant(s)' opinion that the claims presently on file patently distinguish the present invention from each of these references. The above references are being cited only in the interests of candor and without any admission that they constitute statutory prior art or contain matter which anticipates the invention or which would render the same obvious, either singly or in a combination, to a person of ordinary skill in the art.

If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 50-1047.

Respectfully submitted,



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Enclosures:
- ☒ PTO/SB/08
- ☒ References; US patents omitted, as not required
- ☐ Foreign Search Report
- ☐ Other:

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I certify that this document and fee is being deposited 5/17/04 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Mail Stop DD, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Joanne Ryan
Signature of Person Mailing Correspondence

Joanne Ryan
Typed or Printed Name of Person Mailing Certificate

Docket No.: 03-099

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 5

Complete if Known	
Application Number	10/702,314
Filing Date	11/06/2003
First Named Inventor	Richard Carlton Mattison
Group Art Unit	3731
Examiner Name	Unassigned
Attorney Docket Number	03-099

Examiner Initials*	Cite No. [1]	U.S. Patent Document Number	Class/Subclass	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
	1.	US2002/0039620A1	427/2.12	Shahinpoor et al.	04/04/2002
	2.	6,514,237 B1	604/533	Maseda	02/04/2003
	3.	6,475,639 B2	428/614	Shahinpoor et al.	11/05/2002
	4.	6,391,051 B2	623/1.12	Sullivan III et al.	05/21/2002
	5.	6,109,852	414/1	Shahinpoor et al.	08/29/2000
	6.	5,855,565	604/104	Bar-Cohen et al.	01/05/1999
	7.	5,631,040	427/100	Takuchi et al.	05/20/1997
	8.	5,268,082	204/282	Oguro et al.	12/07/1993
	9.	US2001/0026165A1	324/750	Pelrine et al.	10/04/2001
	10.	6,520,983 B1	623/1.11	Colgan et al.	02/18/2003
	11.	6,249,076 B1	310/363	Madden et al.	06/19/2001
	12.	6,117,296	204/607	Thomson	09/12/2000
	13.	5,766,013	434/114	Vuyk	06/16/1998
	14.	5,556,700	428/332	Kaneto et al.	09/17/1996
	15.	5,389,222	204/299.2	Shahinpoor	02/14/1995
	16.	5,100,933	523/300	Tanaka et al.	03/31/1992
	17.	5,250,167	204/299 R	Adolf et al.	10/05/1993

Examiner Initials*	Cite No. [1]	Foreign Patent Document Office [3]	Number [4]	Class/Subclass	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T
	1.	WO	01/58973A2	C08G	SRI International	08/16/2001	

Examiner Signature		Date Considered	

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[1] Unique citation designation number. [2] See Kinds of U.S. Patent Documents. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English Language Translation is attached.

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(use as many sheets as necessary)*				*Complete if Known*	
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				First Named Inventor	Richard Carlton Mattison
				Group Art Unit	3731
				Examiner Name	Unassigned
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	1	JAGER, EDWIN W.H., et al., "Applications of Polypyrrole Microactuators," SPIE Proceedings, Conference on Electroactive Polymer Actuators and Devices, March 1999, Vol. 3669, pp. 377-384.	
	2.	OTERO, TORIBIO et al., "EAP as Multifunctional and Biomimetic Materials," SPIE Proceedings, Conference on Electroactive Polymer Actuators and Devices, March 1999, Vol. 3669, pp. 26-34.	
	3.	SMELA, ELISABETH, "Conjugated Polymer Actuators for Biomedical Applications," *Advanced Materials*, Vol. 15, no. 6, March 17, 2003, pp. 481-494	
	4.	GÜLCH, RANIER W., et al., "Characterization of Electroactive Behavior and of Progress in Developments and Applications of Ionic Polymer Gels," *Smart Structures and Materials 2002*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 4695, 2002, pp. 367-377.	
	5.	BAR-COHEN, YOSEPH, "Electroactive Polymers as Artificial Muscles – Capabilities, Potentials and Challenges," Sec. 11 in chap. 8 of *Handbook on Biomimetics*, ed. Yoshihito Osada (NTS, Inc., 2000), pp. 1-13.	
	6.	WAX, S.G., et al., "Compliant Actuators Based on Electroactive Polymers," Materials Research Society Symposium Proceedings, Vol. 600, 2000, pp. 3-11.	
	7.	ROCCHIA, W., et al., "Exploiting Conducting Polymer Radial Expansion for Bioinspired Actuation," *Smart Structures and Materials 2003*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 5051, 2003, pp. 453-457.	
	8.	SAHOO, HEMANTKUMAR, et al., " Actuators Based on Electroactive Polymers," *Current Science*, Vol. 81, no. 7, Oct. 2001, pp. 743-746.	
	9.	SANSIÑENA, JOSÉ-MARIA, et al., "Conductive Polymers," Chap. 7 in *Electroactive Polymer Actuators (EAP) as Artificial Muscles,* ed. Y. Bar-Cohen (SPIE Press, 2001), pp. 193-221.	

Examiner Signature		Date Considered	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation, if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	10.	BAR-COHEN, YOSEPH, ed., *WorldWide ElectroActive Polymers EAP (Artificial Muscles) Newsletter*, Vol. 3, no. 1, June 2001.	
	11.	BAR-COHEN, YOSEPH, "EAP History, Current Status, and Infrastructure," Chap. 1 in *Electroactive Polymer Actuators (EAP) as Artificial Muscles,* ed. Y. Bar-Cohen (SPIE Press, 2001), pp. 3-43.	
	12.	KORNBLUH, ROY, et al., "Application of Dieelectric Elastomer EAP Actuators," Chap. 16 in *Electroactive Polymer Actuators (EAP) as Artificial Muscles,* ed. Y. Bar-Cohen (SPIE Press, 2001), pp. 457-495.	
	13.	BAR-COHEN, YOSEPH, "Transition of EAP Material from Novelty to Practical Applications – Are We There Yet?" *Smart Structures and Materials 2001*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 4329, 2001, pp. 1-6.	
	14.	PELRINE, RON, et al., "Applications of Dielectric Elastomer Actuators," *Smart Structures and Materials 2001*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 4329, 2001, pp. 335-349.	
	15.	MADDEN, JOHN D.W., et al., "Polyprrole Actuators: Modeling and Performance," *Smart Structures and Materials 2001*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 4329, 2001, pp. 72-83.	
	16.	BAR-COHEN, YOSEPH, "EAP Applications, Potential, and Challenges," Chap. 21 in *Electroactive Polymer Actuators (EAP) as Artificial Muscles,* ed. Y. Bar-Cohen (SPIE Press, 2001), pp. 615-659.	
	17.	JAGER, EDWIN W.H., et al., "Microfabricating Conjugated Polymer Actuators," *Science,* Vol. 290, Nov. 2000, pp. 1540-1545.	
	18.	SMELA, ELISABETH, et al., "Electrochemically Driven Polypyrrole Bilayers for Moving and Positioning Bulk Micromachined Silicon Plates," *Journal of Microelectromechanical Systems*, Vol. 8, no. 4, Dec. 1999, pp. 373-383.	

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	19.	SMELA, ELISABETH, et al., "Thiol-Modified Pyrrole Monomers: 1. Synthesis, Characterization, and Polymerization of 1-(2-Thioethyl)pyrrole and 3-(2-Thioethyl)pyrrole," *Langmuir*, Vol. 14, 1998, pp. 2970-2975.	
	20.	SMELA, ELISABETH, "Microfabrication of Ppy Microactuators and Other Conjugated Polymer Polymer Devices," *Journal of Micromechanics and Microengineering*, Vol. 9, 1999, pp. 1-18.	
	21.	IMMERSTRAND, C., et al., "Conjugated-Polymer Micro- and Milliactuators for Biological Applications," *Materials research Society Bulletin*, June 2002, pp. 1-4.	
	22.	MADDEN, JOHN D.W., et al., "Conducting Polymer Actuators as Engineering Materials," *Smart Structures and Materials 2002*, ed. Y. Bar-Cohen, SPIE Proceedings, Vol. 4695, 2002, pp. 176-190.	
	23.	ZHOU, D., et al., "Actuators for the Cochlear Implant," *Synthetic Materials*, Vol. 135-136, 2003, pp. 39-40.	
	24.	http://www.micromuscle.com	
	25.	BROCK, DAVID L., Review of Artificial Muscle Based on Contractile Polymers. Massachusetts Institute of Technology Artificial Intelligence Laboratories. http://www.a1.mit.edu/projects/muscle/papers/memo1330/memo1330.html	
	26.	Material: Conducting polymers, Dielectric elastomers, Piezoelectric materials. http://www.designinsite.dk/htmsider	
	27.	Artificial Muscle Transducers. http://www.erg.sri.com/automation/actuators.html	

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	28.	Miniature Electroactive-Polymer Rakes. http://www.nasatech.com/Briefs/Oct01/NPO20613.html	
	29.	Electroactive polymer. Nano Bioelectronics & Systems Research Center. http://nanobio.snu.ac.kr/eng/research_5.html	
	30.	Polymers and Separations Research Lab (PolySep). Electroactive Polymers as Artificial Muscles – A Primer. http://polysep.ucla.edu/Research%20Advances/EAP/electroactive_polymers-asartifi.htm	
	31.	Aviation Research. You Decide. Electroactive Polymers 2: Ionic and Conductive Polymers. http://virtualskies.arc.nasa.gov/research/youDecide/ionicNConducPolym.html	
	32.	ElectroActive Polymers – EAPs. http://www.azom.com/details.asp?ArticleID=885	
	33.	http://www.darpa.mil/dso/trans/electropolymers/projects/EAP_Jan02_LJB.pdf	

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